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10/584,957	08/01/2007	Oemer Uensal	12834-00018-US	2248
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EXAMINER				
GRESO, AARON J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/584,957

Applicant(s)

UENSAL ET AL.

Examiner

AARON GRESO

Art Unit

1726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO reply for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 28-58 is/are pending in the application.
- 5a) Of the above claim(s) 41 is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 41, 49-54 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

1. Claims 28-58 are pending in this application; Claims 41, 49-54 are withdrawn; Claims 28-40, 42-48, 55-58 are examined.

Election/Restrictions

2. Election and restriction are withdrawn; arguments are moot subject to instant Claims applicable per Examiner Notes and 35 USC 112 2nd paragraph interpretations as indicated below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 28 and its dependent Claims 29-55, 59-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. In the present case, Step D) of Claim 28 presents the parenthetical phrase of “(until it is self-supporting)”; it is not known if this is a limitation of Claim 28.
6. Appropriate action is required.
7. In accord with the broadest reasonable interpretation, to further prosecution “(until it is self-supporting)” is taken as being optional as the term would be expected without parenthesis when applicable to the Claim limitations; although the claims are interpreted in light of the Specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. **Claim 35** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Instant Claim 35 indicates that the R or R' groups are radicals that represent a C1-C20 carbon containing group.
10. However, the claim, as written, is not limited to how many other atoms, elements, or molecule groups are also part of the group. As such, the claim is unbounded.
11. Appropriate action is required.
12. To further prosecution, R or R' groups are taken as comprising any other atom or element that can be bonded to a hydrogen or phosphorous as long as the carbon number in the R or R' group number does not exceed 20.
13. **Claim 41** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
14. It is noted that **there are two Claim 41's**; one on page 15 of the 08/01/2007 Claim set, and another Claim 41 on pages 11-14 of the same Claim set date. It is not known as to whether one of the Claims is applicable to being a presented claim or was to be stricken.
15. Appropriate action is required.
16. To further prosecution, Claim 41 on pages 11-14 is taken as Claim 41 while Claim 41 on page 15 is taken as being a renumbered claim represented as Claim 59.

17. **Claim 41** {per pages 11-14 indicated as Claim 41, as discussed above} is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. Uncertainty arises from the Claim phrase "a polymer containing recurring benzimidazole units of the formula" which is followed by more than one formula structure.

19. Appropriate action is required.

20. To further prosecution, the Claim is taken as comprised of improper Markush group terminology. As such:

21. The improper phrasing of the Markush group renders the claim indefinite because it is unclear which members of the group are part of the claimed invention. Markush groups must be stated in the alternative, of which one acceptable form is "...selected from the group consisting of A, B and C." See MPEP § 2173.05(h).

22. **Claim 59** {per page 15 previously applicable as Claim 41, as discussed above} is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

23. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine

the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

24. For the Claim, the phrase "A) and/other before step B)," is uncertain as to the applicable Claim scope.

25. The term is indefinite because the specification does not clearly redefine the term. It is not sure as to whether a "typo" applies as to how a typographical err would apply. For example, the phrase and/other can be taken as "and/ or other", or, "and/or".

26. Appropriate action is required.

27. To further prosecution, the "and/other" term is taken as "and/or".

28. **Examiner Notes:**

29. I.) **Claims 28 and its dependent Claims 29-41, 42-45, 52, 54-58;** as well as **Claim 49** are viewed as product-by-process claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See

MPEP 2113. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III).

30. As such, Claim 59 and Claims 46-48, depending from Claim 28, are taken as comprising further limiting limitations for the product by process Claims.

31. In addition Claim 49 dependent Claims 50-51 and 53 are also taken as comprising further limiting limitations for the product by process Claim 49.

32. **II.) Claims 28 and its dependent Claims 29-41, 42-45, 52, 54-58** as well as **Claim 49** interpretations; of Claim step A) for both independent Claims 28 and 49; are applicable to the limitations of:

33. **Per Claim 28:**

34. "A) mixing one or more aromatic tetraamino compound(s) with one or more aromatic carboxylic acids or their esters, which contain at least two acid groups per carboxylic acid monomer, OR mixing one or more aromatic and/or heteroaromatic diaminocarboxylic acids in organic phosphonic acid anhydrides with formation of a solution and/or dispersion," {emphasis added}.

35. **Per Claim 49:**

36. "A) mixing one or more aromatic tetraamino compounds with one or more aromatic carboxylic acids or their esters, which contain at least two acid groups per carboxylic acid monomer, OR mixing one or more aromatic and/or heteroaromatic diaminocarboxylic acids in organic phosphonic acid anhydrides with formation of a solution and/or dispersion," {emphasis added}.

Claim Rejections - 35 USC § 102

37. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

38. **Claims 28-58 and pro-tem Claim 59** are rejected under 35 U.S.C. 102(b) as being anticipated by Kiefer et al. (WO 03/074597 as interpreted through PCT/EP03/02397, US filed US 2005/0118477) as enabled by DE 10117687.2 corresponding to DE 10117687 [published 17 October 2002] as interpreted through US filed US 2004/0127588 to Calumdann et al.) {Per enabled, see MPEP 2131.01 (A)}.

39. Kiefer et al. discloses applications of polybenimidazole materials in proton conducting electrolyte material (Title and [0010]) based upon polyazoles (0050) indicated as being proton conductive ([0033]).

40. **As to Claim 28:**

41. Kiefer et al. discloses polymer compositions based upon polyazole materials ([0050]-[0077]; pages 3-6; the aeriels are applicable to being self-supporting membranes after polymerization ([0186]); Kiefer et al. discloses that preferred polymers employed are those applicable to {the enabling reference} ([0081]).

42. Polymers are made by polymerizing an acid in a step indicated as B) ([0035]) after swelling another polymer in step A) (0034) employing a solvent ([0161]) including polyphosphoric acid or phosphoric acid. The phosphonic acid monomeric material is

employed and is applied as in swelling solvent ([0160]) along with a sulfonic acid material ([0164]) and the polymer swelling is improved with addition of an organic solvent ([0161]) to improve the polymer's solubility ([0162]). The resulting polymer membrane formed shows better properties than formerly known doped polymer membranes ([0197]) indicated as comprising polybenzimidazole ([0242]-[0243]) (taken as the process makes a doped membrane), that are applicable to use in fuel cells ([0199]). Monomeric material is then cross-linked after swelling (Examples 2-3 [0242]-[0243]) **{addressing Claim 28}**.

43. Examiner note: As Claim 28 is a product by process claim; the product structure is applicable to the claim limitations. As such, as absent unexpected results, the structure presented by Kiefer et al., as supported by the reference's enabling reference indicated above, applicable to interpretation of US 2004/0127588 for the preferred polymer materials disclosed by Kiefer et al. (0081), is taken as indicating that the material applied by Kiefer et al. is enabled according to the polymer material structure disclosed by the enabling reference.

44. **Further as to Claims 29-34 and 55:**

45. The enabling reference indicates that for the preferred polymers employed, the polymers comprise the materials of Claim 29 ([0017]); the materials of Claims 30, 31, 32 ([0018]) and Claim 33 ([0019]) **{addressing Claims 30, 31, 32}**; the amounts of tricarboxylic acid or tetracarboxylic acids being 0-30 mol percent and in particular, 0.5-10% ([0021]) **{addressing Claims 33 and 55}**; the heteroaromatic carboxylic acids of

the enabling reference comprising oxygen, sulphur or phosphorus atoms in the aromatic group ([0020]) {addressing Claim 34}.

46. **Further as to Claims 35-38:**

47. As the processing step is applicable to the product by process Claim 28, as Claim 28 is met, so too are **Claims 35-38**.

48. **Further as to Claims 39, 41:**

49. Membranes for the compositions, per the enabling reference ([0025]-[0058]), comprise polymers based on polyazoles containing repeat azole units of general formula (I) and/or (II) and/or (III) and/or

50. (IV) and/or (V) and/or (VI) and/or (VII) and/or (VIII) and/or

51. (IX) and/or (X) and/or (XI) and/or (XII) and/or (XIII) and/or

52. (XIV) and/or (XV) and/or (XVI) and/or (XVI) and/or

53. (XVII) and/or (XVIII) and/or (XIX) and/or (XX) and/or

54. (XXI) and/or (XXII) of pages 4-5 ([0050]) and represent those of instant Claim 39 {addressing Claim 39}.

55. Per the enabling reference, repeating units employed in applicable materials formed for compositions are also indicated on page 6-7 and represent those of instant Claim 45, for repeating number of "n" being greater than 10 ([0077]) {addressing Claim 41}.

56. **Further as to Claim 40:**

57. Per the enabling reference, repeating ([0067]) units also comprise thiazole, oxadiazole, benzoxazole, quinoxalline, thiadiazole, benzothiazole, benzimidazole, units, inherently taken as applicable to polyparathiazole} with poly benzimidazole being distinguished ([0078] and Example 2 and 3 [0242]-[0243]) **{addressing Claim 40}**.

58. **Further as to pro-tem Claim 59:**

59. As the processing step is applicable to the product by process Claim 28, as Claim 28 is met, so too is Claim 42 **{addressing Claim 42}**. In addition, the preferred polymer materials of Kiefer et al. ([0081]) are disclosed by the enabling reference are indicated to be employed as blends ([0090]) **{addressing Claim 59}**.

60. **Further as to Claim 42:**

61. As the processing step is applicable to the product by process Claim 28, as Claim 28 is met, so too is Claim 42. In addition, processing to make materials is indicated by Kiefer et al. to comprise adding solvent material to adjust viscosity ([0074]); a particularly indicated solvent being phosphoric acid ([0161]).

62. **Further as to Claim 43:**

63. As the processing steps are applicable to the product by process Claim 28, as Claim 28 is met, so too is Claim 48. In addition, the preferred polymer material of Kiefer et al. ([0081]) are disclosed by the enabling reference as being moisture treated, self-supporting and detachable without damage (0062)).

64. **Further as to Claims 44-48:**

65. The enabling reference indicates that the preferred polymers employed are prepared in steps A) to E) which encompass the process applicable to instant Claim 28 Step D) ([0012]) while further indicating that proton conducting material and acid is applicable to step B) ([0076]), Proton conducting material and acid including phosphonic acid is disclosed in Kiefer et al. ([0095] and [0133]).

66. The enabling reference further discloses that the polymer material employed by Kiefer et al. is made by further treating in the presence of moisture to become self-supporting at temperatures above 0°C and less than 150°C and preferably between 20°C to 90°C ([0062]-[0063]) **{addressing Claim 44}**; treatment time is indicated to be from 1 minute to 200 hours ([0069]) **{addressing Claim 45}**; preferably made material thicknesses are 15-3000 μm ([0064]) **{addressing Claims 47-48}**; and the material is also applicable to being made such as not to be self-supported when formed onto an electrode ([0094]) **{addressing Claim 46}**.

67. **Further as to Claim 52:**

68. Kiefer et al. also discloses that a membrane is comprised in a membrane electrode unit ([0200]), taken as polymer membrane material being inherently comprised with an electrode while also inherently taken as incorporating preferred polymer membranes; when the limitations of Claim 29 is taken with Claim 28, **Claim 52 is addressed.**

69. **Further as to Claims 53-54:**

70. The polymer material is indicated to be coated with catalyst material ([0231]); Kiefer et al. also discloses that a membrane is comprised in a membrane electrode unit

([0200]), taken as polymer membrane material being inherently comprised with an electrode while also inherently taken as incorporating preferred polymer membranes {addressing Claims 53-54}.

71. **Further as to Claim 56:**

72. The enabling reference indicates that applicable preferred polymers of Kiefer et al. ([0081]) are comprised of materials indicated as having preferences for ([0020]):

73. Pyridine-2,5-dicarboxylic acid, pyridine-3,5-dicarboxylic acid, pyridine-2,6-dicarboxylic acid, pyridine-2,4-dicarboxylic acid, 4-phenyl-2,5-pyridinedicarboxylic acid, 3,5-pyrazoledicarboxylic acid, 2,6-pyrimidinedicarboxylic acid, 2,5-pyrazinedicarboxylic acid, 2,4,6-pyridinetricarboxylic acid, benzimidazole-5,6-dicarboxylic acid, and also their Cl-C20-alkyl esters or C5-C12-aryl esters or their acid anhydrides or acid chlorides.

74. **Further as to Claim 57:**

75. The enabling reference indicates that applicable preferred polymers of Kiefer et al. ([0081]) are comprised of materials indicated as having preferences for ([0019]):

76. Aromatic tetracarboxylic acids or their Cl-C20-alkyl esters or C5-C12-aryl esters or their acid anhydrides or acid chlorides are preferably 3,5,3',5'-biphenyltetracarboxylic acid, 1,2,4,5-benzenetetracarboxylic acid, benzophenonetetracarboxylic acid, 3,3',4,4'-biphenyltetracarboxylic acid, 2,2',3,3'-biphenyltetracarboxylic acid, 1,2,5,6-naphthalenetetracarboxylic acid, 1,4,5,8-naphthalenetetracarboxylic acid.

77. **Further as to Claim 58:**

78. The enabling reference indicates that applicable preferred polymers of Kiefer et al. ([0081]) are comprised of materials indicated as having preferences for ([0018]):

79. Aromatic tricarboxylic or tetracarboxylic acids and their C1-C20-alkyl esters or C5-C12-aryl esters or their acid anhydrides or acid chlorides are preferably 1,3,5-benzenetricarboxylic acid (trimesic acid), 1,2,4-benzenetricarboxylic acid (trimellitic acid), (2-carboxyphenyl)iminodiacetic acid, 3,5,3' -biphenyltricarboxylic acid, 3,5,4' -biphenyltricarboxylic acid.

80. **Further As to Claim 49:**

81. Kiefer et al. disclosure as applied to USC 35 102(b), in regard to the enabling reference of Calumdann et al., is as addressed above. In addition, Kiefer et al. also discloses that a membrane is comprised in a membrane electrode unit ([0200]), taken as polymer membrane material being inherently comprised with an electrode while also inherently taken as incorporating preferred polymer membranes.

82. In addition, Kiefer et al. also discloses that a membrane is comprised in a membrane electrode unit ([0200]), taken as polymer membrane material being inherently comprised with an electrode while also inherently taken as incorporating preferred polymer membranes. The polymer material is indicated to be coated with catalyst material ([0231]) {addressing Claim 49}.

83. **Further as to Claims 50-51:**

84. The catalyst layer is indicated to be of a thickness of preferably 10-300 μm .

85. When Claim 52 limitations are addressed with the material of Claim 51, Claim 53 is addressed.
86. When Claim 52 limitations are addressed with the material of Claim 51, Claim 53 is addressed.
87. The reference discloses or inherently discloses, with the enabling reference, the limitations of the applicable Claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

88. Claim 28 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 28 of copending Application No. 10/584965.
89. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

90. Although the conflicting claims are not identical, they are not patentably distinct from each other because although copending claim 28 comprises an additional step, the copending product by process claim is taken as applicable to producing the same or obviously similar product in a similar manner.

91. Further co-pending claim 29: Although the product by process claim only applies to materials made at temperatures applicable to temperatures up to 300 and 280°C, the compositions of instant Claim 28 are applicable to being made at temperatures up to 350°C; the ranges overlap; this is also applicable to the ranges for copending claims 28 with 32 with either 35 or 36 36 as applied to instant Claims 28 with 31 with 33.

Additional applicable obvious double patenting rejections apply to the co-pending claims and instant Claims per the ODP Table A that follows:

92. Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Table A: ODP Rejection co-pending and Instant Claim Combinations

<u>Instant Claims</u>	<u>copending claims</u>
28	28 or 28 with 29
28 with 29	28 with 30
28 with 30	28 with 31
28 with 31 with 33	28 with 32 with 35 OR 36
28 with 32	28 with 32
28 with 34	28 with 37
28 with 35	28 with 39
28 with 36	28 with 40
28 with 39	28 with 43
28 with 40	28 with 44
28 with 45	28 with 51
28 with 46	28 with 52

Correspondence

93. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON GRESO whose telephone number is (571)270-7337. The examiner can normally be reached on M-F 0730-1700.

94. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

95. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron J. Greso/

/Patrick Joseph Ryan/
Supervisory Patent Examiner, Art Unit 1726